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THE WORK OF THE AGRICULTURAL COLLEGES IN TRAINING TEACHERS OF AGRICULTURE FOR SECONDARY SCHOOLS.[1]

As a basis for this report the committee decided to study the catalogues and reports of the agricultural colleges and to secure additional information, as well as the opinions of leading educators, by correspondence and by personal interview. As a first step in the investigation, circular letters were sent to the presidents or deans of agricultural colleges, to the professors of agricultural education in institutions employing such officers, and to State superintendents of public instruction.

These letters indicated the desire of the committee to learn what the agricultural colleges are now doing to train teachers of agriculture, what facilities are available for this work, what plans are maturing for its future development, and what are the opinions of those receiving the letters on the following points:

(1) What should the colleges do for the teacher now in service who wants to prepare himself for efficient work in agriculture?

(2) What should the colleges do to prepare those who have had no experience in teaching?

(3) Is it feasible for agricultural colleges and normal schools to cooperate in training teachers for secondary schools?

(4) What should be the technical and professional content, respectively, of the training courses for teachers of agriculture?

(5) How can the agricultural colleges meet the practice-teaching problem?

Replies were received from 38 agricultural-college men and from 16 State superintendents of public instruction. Of the former 36 expressed opinions or indicated their views by describing features of the work of their institutions in training teachers of agriculture for secondary schools, 2 gave neither opinions nor plans. Of the 16 State superintendents of public instruction 8 expressed personal opinions. Ten of those replying referred to the work of their agricultural colleges in favorable terms or secured data from those colleges for the use of the committee. One only of the entire number expressed an opinion unfavorable to the training of teachers of agriculture in an agricultural college.

[1] This is the fifteenth report of the committee on instruction in agriculture of the Association of American Agricultural Colleges and Experiment Stations, and was presented at the Atlanta convention of that association November 13, 1912.

OPINIONS OF LEADING EDUCATORS.

Taking up now the opinions expressed by all of the correspondents of the committee, the following summary will be of interest:

(1) What should the colleges do for the teacher now in service who wants to prepare himself for efficient work in agriculture?

Two-thirds of those who expressed an opinion on any of the questions submitted—32 out of 48 to be accurate—recommended the holding of summer schools for teachers in service as being necessary or extremely desirable on the part of the agricultural colleges. Twelve were of the opinion that the colleges should also reach the teachers through extension work, and 11 suggested correspondence courses in agriculture for teachers. Three were of the opinion that instead of summer schools with elementary instruction in agriculture, the technical courses in agriculture given in regular summer sessions should be taken by teachers in service who expect to teach agriculture in high schools, and others emphasized the importance of thorough training in the regular courses in agriculture as compared with special elementary courses for high-school teachers.

(2) What should the colleges do to prepare those who have had no experience in teaching?

Fourteen stated that the agricultural colleges should organize definite courses for teachers of agriculture, and 21 would have teachers pursue the regular agricultural course and take in addition to that professional courses in education such as psychology, pedagogy, methods of instruction, observation, and practice teaching Seven of the 21 mentioned courses in agricultural education as a part of the professional work. Three suggested offering technical courses in agriculture in summer session to enable regular students and specials to take this work for university credits.

Several of the committee's correspondents and some of those interviewed were of the opinion that young men preparing to teach agriculture in high schools should complete courses of a general nature in all of the principal branches of agriculture but should not specialize in that subject. The time usually devoted to specializing in some phase of agriculture would in this case be devoted to courses in education.

(3) Is it feasible for agricultural colleges and normal schools to cooperate in training teachers for secondary schools?

On this question there was a wide difference of opinion and some indication that those replying to it did not take into consideration the fact that the committee is not investigating the preparation of teachers for elementary schools, but rather those for high schools. Seventeen correspondents expressed the opinion that cooperation between these institutions is feasible and desirable, while 15 expressed contrary opinions. It was suggested by five correspondents that normal schools might give the first two years of a teacher-training

course, the second two years to be taken in the agricultural college. One suggested that the normal-school graduates be required to spend three months in the agricultural colleges, and another that the normal schools might receive agricultural-college graduates for finishing work in education. Among those who expressed opinions unfavorable to cooperation between these institutions, the opinion seemed to be general that the training of teachers for elementary schools is the particular field of the normal schools and a large enough field for them, while teachers preparing for high schools should have at least the equivalent of a college education, whether it be in an agricultural college or some other type of institution. This opinion is strengthened in some of the States by legislative requirements making it necessary for high-school teachers to have completed a college course before they can be employed. Other States, where State aid for agriculture is provided for, require the employment of teachers of agriculture who have had the equivalent of a four-year college course in agriculture.

(4) What should be the technical and the professional content, respectively, of the training course for teachers of agriculture?

Upon this question the committee hardly expected to secure anything like uniformity of opinion, and it was not disappointed. Upon one point, however, all correspondents seemed to agree, and that was that both technical and professional training are necessary for the satisfactory preparation of high-school teachers of agriculture.

It no longer seems to be assumed that a knowledge of subject matter is all that is needed by the high-school teacher, and one agricultural-college man was led to admit that "it is almost equally desirable * * * that college teachers of agriculture should also have * * * not only training in agriculture, but also pedagogical training of such a nature as will give them the teacher's point of view."

Among the specific suggestions as to the content of the course of study, the following are offered:

Bagley, Ill.—Seven semester hours' educational theory, five semester hours' practice teaching, the balance agriculture.

Waters, Kans.—Two-fifths cultural, two-fifths technical, one-fifth professional.

Shawkey, W. Va.—Three-fourths academic, one-fourth agricultural and professional.

Nolan, Ill.—At least one semester of each of the main branches of agriculture and one in agricultural education.

Jones, Me.—In addition to the technical work in agriculture and allied subjects, the following as essentials: Educational psychology, history of education, principles of education, methods, including observation, and class management; and the following as very desirable—biology, sociology, and child study.

French, Mich.—The regular technical work in agriculture and not less than one-half nor more than one year of special professional study on the pedagogical side.

Mairs, Pa.—Out of a total of 160 credits requires 12 in English, 12 in foreign languages, 33 in general science, 6 in economics, 8 in mathematics, 13 in pedagogy, making 84 credits, the remainder being largely in technical agricultural subjects.

Parrott, N. Dak.—States that 16 semester hours of professional work are required by law for the preparation of high-school teachers and that the remainder of their course is devoted to the usual agricultural-college subjects.

Roberts, Ind.—The technical content of such courses ought to cover the general subjects in agriculture, and the professional content should include educational psychology, history and principles of education, methods, school organization and management, secondary and industrial education.

(5) How can the agricultural colleges meet the practice-teaching problems?

Again there seems to be quite general recognition of the need of professional training such as can be had only by some form of practice teaching. Eight of those expressing opinions on this question were of the opinion that it is feasible and desirable for teacher students in the agricultural colleges to practice under supervision in the secondary schools of agriculture or the preparatory schools connected with the colleges of agriculture. Eight suggested cooperating with neighboring high schools; four, locating a public school on the campus; two, the establishment of a model agricultural school of secondary grade on the campus; two, practice teaching in the short courses; two, establishing teaching fellowships, the fellows to be paid jointly by the colleges and the schools employing them; two, sending agricultural students to normal schools for practice work. It seemed to be generally agreed that the practice-teaching problem is a difficult one except in cases where teachers' colleges or normal schools are located on the same campus as the agricultural colleges, in which cases the practice teaching can be secured under the same provision as teachers preparing for other lines of work.

THE PRESENT WORK OF THE AGRICULTURAL COLLEGES IN TRAINING TEACHERS OF AGRICULTURE FOR HIGH SCHOOLS.

SUMMARY.

From the best available sources of information it appears that 40 of the agricultural colleges for white students are offering courses designed to train high-school teachers of agriculture. In some cases little more than an elective or two in psychology and pedagogy is offered; in others there are summer schools; in others definitely outlined teacher-training courses, with opportunities for broad general training in agriculture, and for the most approved instruction in education, supplemented by practice teaching under expert supervision. Thirty-one of the agricultural colleges conduct summer schools in which special opportunities are afforded for the training of teachers, and in 24 of these summer schools courses for high-school teachers are conducted. In 33 of the agricultural colleges students in the agricultural course are given opportunities to elect courses in education, and in 13 institutions where there are both colleges of agriculture and colleges of education, students in education may elect courses in agriculture.

The dignity to which agriculture has risen in recent years as a subject of study in public schools is indicated by the fact that 20 of the agricultural colleges now offer courses in agricultural pedagogy or, as it is sometimes called, "industrial pedagogy," in which special attention is given to methods of teaching this new high-school subject.

Fifteen of the agricultural colleges have outlined four-year courses for teachers of agriculture, the work of which in many cases is largely prescribed. Two of the colleges have outlined two-year courses for teachers of agriculture, and three of them one-year courses. To meet the demand coming from graduates of other colleges and of normal schools, four of the agricultural colleges have made provisions for special courses in agriculture to which these graduates may be admitted, and which are usually so arranged that it will be possible to complete the work in one year.

The following tables show what agricultural colleges are engaged in the training of teachers and the character of work offered by each college:

Courses for teachers in the agricultural colleges.

State.	Summer schools for teachers.		Agricultural students may elect courses in education.	Education students may elect courses in agriculture.	Courses offered in agricultural pedagogy.	Prescribed courses for agricultural teachers.			Special courses for college graduates preparing to teach agriculture.
	Elementary.	Secondary.				4-year.	2-year.	1-year.	
Alabama			+		+				
Arizona									
Arkansas			+		+				
California	+	+	+	+	+				
Colorado			+						+
Connecticut	+								
Delaware									
Florida			+	+		+			
Georgia	+	+	+	+					
Idaho	+	+	+		+		+	+	
Illinois	+	+	+		+	+			
Indiana	+		+						
Iowa	+	+	+		+	+			
Kansas	+	+	+		+				+
Kentucky	+	+	+						
Louisiana	+	+	+	+	+	+			
Maine	+	+	+			+			+
Maryland									
Massachusetts	+	+	+		+				
Michigan			+		+				+
Minnesota	+	+	+		+				
Mississippi	+				+	+			
Missouri	+	+	+	+		+			
Montana									
Nebraska	+	+	+		+			+	
Nevada	+		+	+					
New Hampshire									
New Jersey									
New Mexico			+						
New York	+		+	+					
North Carolina	+	+				+	+	+	
North Dakota			+	+		+			
Ohio	+	+	+	+	+				
Oklahoma	+		+			+			
Oregon	+	+	+		+				
Pennsylvania	+	+	+		+	+			
Rhode Island						+			
South Carolina									
South Dakota			+						
Tennessee	+	+	+	+	+	+			
Texas	+								
Utah	+	+							
Vermont	+	+				+			
Virginia									
Washington	+	+	+	+	+				
West Virginia	+	+	+		+				
Wisconsin	+	+	+	+	+	+			
Wyoming	+	+	+	+					
Total	31	24	33	13	20	15	2	3	4

Summer schools for teachers of agriculture in elementary schools.

1. California.
2. Connecticut.
3. Georgia.
4. Idaho.
5. Illinois.
6. Indiana.
7. Iowa.
8. Kansas.
9. Kentucky.
10. Louisiana.
11. Maine.
12. Massachusetts.
13. Minnesota.
14. Mississippi.
15. Missouri.
16. Nebraska.
17. Nevada.
18. New York.
19. North Carolina.
20. Ohio.
21. Oklahoma.
22. Oregon.
23. Pennsylvania.
24. Tennessee.
25. Texas.
26. Utah.
27. Vermont.
28. Washington.
29. West Virginia.
30. Wisconsin.
31. Wyoming.

Summer schools for high-school teachers of agriculture.

1. California.
2. Georgia.
3. Idaho.
4. Illinois.
5. Iowa.
6. Kansas.
7. Kentucky.
8. Louisiana.
9. Maine.
10. Massachusetts.
11. Minnesota.
12. Missouri.
13. Nebraska.
14. North Carolina.
15. Ohio.
16. Oregon.
17. Pennsylvania.
18. Tennessee.
19. Utah.
20. Vermont.
21. Washington.
22. West Virginia.
23. Wisconsin.
24. Wyoming.

Colleges offering electives in education for agricultural students.

1. Alabama.
2. Arkansas.
3. California.
4. Colorado.
5. Florida.
6. Georgia.
7. Idaho.
8. Illinois.
9. Indiana.
10. Iowa.
11. Kansas.
12. Kentucky.
13. Louisiana.
14. Maine.
15. Massachusetts.
16. Michigan.
17. Minnesota.
18. Missouri.
19. Nebraska.
20. Nevada.
21. New Mexico.
22. New York.
23. North Dakota.
24. Ohio.
25. Oklahoma.
26. Oregon.
27. Pennsylvania.
28. South Dakota.
29. Tennessee.
30. Washington.
31. West Virginia.
32. Wisconsin.
33. Wyoming.

Colleges offering electives in agriculture for students in education.

1. California.
2. Florida.
3. Georgia.
4. Louisiana.
5. Missouri.
6. Nevada.
7. New York.
8. North Dakota.
9. Ohio.
10. Tennessee.
11. Washington.
12. Wisconsin.
13. Wyoming.

Colleges offering courses in agricultural pedagogy.

1. Alabama.
2. Arkansas.
3. California.
4. Idaho.
5. Illinois.
6. Iowa.
7. Kansas.
8. Louisiana.
9. Massachusetts.
10. Michigan.
11. Minnesota.
12. Mississippi.
13. Nebraska.
14. Ohio.
15. Oregon.
16. Pennsylvania.
17. Tennessee.
18. Washington.
19. West Virginia.
20. Wisconsin.

Colleges offering prescribed four-year courses for teachers of agriculture.

1. Florida.
2. Illinois.
3. Iowa.
4. Louisiana.
5. Maine.
6. Mississippi.
7. Missouri.
8. North Carolina.
9. North Dakota.
10. Oklahoma.
11. Pennsylvania.
12. Rhode Island.
13. Tennessee.
14. Vermont.
15. Wisconsin.

TEACHER-TRAINING COURSES OFFERED BY THE AGRICULTURAL COLLEGES.

The following statements, compiled from the catalogues of the agricultural colleges and from letters received by the committee, show what opportunities are offered by the various institutions for combining courses in agriculture and the theory and practice of education by students desiring to become high-school teachers of agriculture. Statements are also included concerning the summer schools conducted by these institutions, for while most of the work in the special summer schools for teachers is elementary in character, nearly one-half of all the institutions make special provision in these schools for high-school teachers of agriculture, and other institutions having regular summer sessions make the same provision for courses of collegiate rank that they do in the sessions of the regular college year.

ALABAMA POLYTECHNIC INSTITUTE.

This institution offers special courses for teachers in quite a large number of subjects, including agriculture and horticulture. The special course in agriculture deals largely with methods of teaching the subject, consists of lectures and laboratory and field exercises, and is intended to meet the needs of those who expect to teach agriculture and nature study in the common schools and agriculture in the high schools. Two hours a week for one quarter.

The course in horticulture and school gardening embraces instruction in nature study, school gardens, and elementary landscape gardening, and deals with methods of teaching elementary horticulture, the use of textbooks, and experiments suitable for elementary and high-school grades. Hours to be arranged.

UNIVERSITY OF ARKANSAS.

This institution has a department of philosophy and pedagogy, and the committee assumes that students desiring to prepare for teaching may select their senior electives from courses offered by this department. The department of agricultural extension also offers one course in agricultural education, "designed especially for students preparing to teach in the schools of the State" and consisting of lectures and laboratory work three hours a week. This course is required of normal students and elective for others.

The normal school connected with the university offers the choice of two 2-year courses—a normal course with science and a normal

course with Latin. The course in agricultural education mentioned above is required in either course.

The normal department has a well-equipped training school in which all senior normal students are required to do daily practice teaching under the guidance of the critic teachers.

UNIVERSITY OF CALIFORNIA.

Undergraduate and graduate courses are offered in the university in the history and theory of education, the courses being designed specially for the professional training of teachers. Courses for undergraduates are divided into three classes, with no special reference to agriculture; however, students desiring to teach agriculture may elect agricultural courses:

(1) Those preparing to become teachers in secondary schools or in colleges.
  (*a*) Education. (History of education; history of American education; social aspects of secondary education; theory of education; principle of secondary education; the high school; school management; language and literature in secondary schools. Either of the above subjects gives the student credit for three units. Moral training, introduction to educational method, study and presentation, two units.)

(2) Those preparing to engage in school administration, to become principals or superintendents of public schools, or to teach in normal schools or in college departments of education, the following course is provided:
  (*a*) Philosophy. (Logic, three units; psychology, three units; ethics, four units.)
  (*b*) Education. (History of education, or theory of education, three units; psychological basis of secondary education, selected topics in the theory and practice of secondary education, or school systems, two units.)
  (*c*) Special graduate studies, and particularly research in the field for which the student is preparing.

(3) For graduates of normal schools who are making further preparation for teaching in elementary schools.

In addition to the above, the following courses are prescribed for those preparing to teach agriculture:

LOWER DIVISION COURSES.

(1) Gardens and garden practice.
  Lectures on school and home gardens, with reference to practical, artistic, and pedagogical considerations. Practice in individual gardens at the university. One-hour lecture or reports, six hours garden work, first half-year; three units.

(2) Agricultural nature study.
  Lectures, laboratory, and field work. School gardens on the university campus will be made the basis for the course, which is intended to give students actual practice in handling children in the school gardens and in the field. Two hours lectures, two hours practice work, either half-year; three units.

UPPER DIVISION COURSES.

(1) Agriculture in elementary schools.
  Agriculture as a distinct subject in the grammar school. Lectures, reading, and laboratory or field work. Designed especially for students in group (*c*) of the department of education, but also recommended, together with the following, for students who intend to teach agriculture in secondary schools: Two hours, first half-year.

(2) Supervision of agriculture in elementary schools.

Lectures and conferences, together with practice teaching in the elementary schools. The course is intended to prepare students for supervisorial work in nature study and agriculture. One hour lecture or conference; two hours practice; either half-year; two units.

(3) Agriculture in secondary schools.

Agriculture as a high-school subject—aims, organization, methods. Reports and demonstrations on selected topics. Two hours, first half-year.

GRADUATE COURSES.

(1) The practice of teaching agriculture.

This course, if taken in connection with the lectures of the course in education on the practice of teaching, will satisfy the requirements, in practice teaching for the high-school teacher's recommendation.

(2) Individual study of special topics.

Time and credit to be arranged.

At the university summer session, six weeks in length, special attention is given to courses for teachers. Most of the work is of university grade, and hence is suitable for the instruction of high-school teachers.

COLORADO AGRICULTURAL COLLEGE.

The technical courses in agriculture, mechanic arts, and household arts are supplemented by work in psychology, history of education, theory and practice of teaching. Provision is also made for practice teaching in the school of agriculture. This work in the preparation of teachers of agriculture satisfies the law which requires "professional training equivalent to at least one-sixth of a standard four-year college course in at least three of the following groups of subjects, one of which shall be practice teaching:"

(1) General educational psychology.
(2) History of education.
(3) Science and principles of education.
(4) Practice teaching and special methods.
(5) Organization and management of schools.
(6) Philosophy, sociology, and anthropology.

Special provision is made for students who have taken their professional training in other institutions of higher learning, especially the State Teachers' College of Colorado, or in the college of education at the University of Colorado, and desire the technical training necessary to fit themselves as teachers of agriculture, mechanic arts, or household arts.

CONNECTICUT AGRICULTURAL COLLEGE.

A summer school of nature study and agriculture is held annually, in which numerous courses in the various branches of elementary agriculture are conducted, supplemented by model exercises to show "how the teaching of agriculture may be practically carried on in rural schools." Among the courses offered are two in education: (1) Psychology and methods of teaching, (2) present rural conditions, social and economic.

Evidently the courses offered by this institution are designed primarily for teachers in the elementary schools.

UNIVERSITY OF FLORIDA.

The college of agriculture of this institution offers a four-year agricultural course for teachers. Its courses are arranged in five groups leading to the degree of bachelor of science in agriculture. In all of these groups the work of the first two years is identical, but in the junior and senior years it is modified to meet the needs of the different groups of students. One of the groups is known as the agricultural-pedagogical group, and the work of the junior and senior years in this group is as follows:

JUNIOR YEAR.

Names of courses.	Nature of work.	Hours per week.
	First semester.	
Education I	Psychology	2
Education II	Methods	3
History II	The United States since 1783	3
Latin A	Cicero	5
Or German I	Elementary course	
Or French I	do	
Elective		5
Total		18
	Second semester.	
Education I	Psychology	2
Education II	School management and supervision	3
History II	The United States since 1783	3
Latin A	Cicero	5
Or German I	Elementary course	
Or French I	do	
Elective		5
Total		18

SENIOR YEAR.

	First and second semesters.	
Education IV	History of education	3
Education V	Secondary education	3
Education VI	Principles and philosophy of education	3
Latin I	Livy, Ovid, Virgil	3
Or German II	Intermediate course	
Or French II	do	
Elective		6
Total		18

In the teacher's college of the university a course is offered leading to the degree of bachelor of science in education, in which a course in general agriculture is required for three hours a week in the freshman year, and electives in agriculture may be taken during the junior and senior year.

UNIVERSITY OF GEORGIA.

The school of education, recently organized at the University of Georgia, announces that a student in the college of agriculture may elect courses in education counting toward the degree of bachelor of

science in agriculture. Under the present arrangement from three to four courses in education may be elected. The courses offered by the school of education include the history and principles of education, educational sociology, the educational process, school administration and supervision, and in addition to these a group of courses in philosophy.

Students in the school of education may elect courses in the State College of Agriculture and the Mechanic Arts to apply as credits to the degree bachelor of science in education.

The University of Georgia maintains a summer school to meet the needs of teachers in elementary and secondary schools, principals, supervisors, and teachers of special subjects. The courses offered at the summer school are so arranged in groups that students can arrange work in education, in agriculture, and in the various other subjects taught in the public elementary and secondary schools.

UNIVERSITY OF IDAHO.

At the University of Idaho students in the college of agriculture may elect courses in education to apply on the degree of bachelor of science in agriculture. According to State law, any graduate of the university receiving the degree of bachelor of arts or bachelor of science, who has finished a two-year course in the department of pedagogy, and who is recommended by the professor of pedagogy, shall receive from the State superintendent of public instruction the State teachers' certificate. To meet these requirements students must secure at least 16 credits in education.

As a result of the demand created by recent legislation requiring agriculture to be taught in the public schools of Idaho the university is now offering a one-year course open to young men or women, 18 years of age or older, who have completed all other requirements for teachers' certificate. This course is almost entirely informational and is confined to subjects in agriculture, the natural sciences, economics, manual training, and home economics.

The university also conducts a special teachers' course of two years in which agriculture is one of the required subjects.

At the summer session of the university, opportunities are given for a study of agriculture by teachers in elementary and high schools.

UNIVERSITY OF ILLINOIS.

At this institution a four-year course for prospective teachers of agriculture has been outlined. The agricultural subjects included in this course are the more general courses offered by the college of

agriculture. The subjects required in this course for the degree of bachelor of science are as follows:

Agronomy, 21 hours.
Animal husbandry, 16½ hours.
Dairy husbandry, 8 hours.
Horticulture, 18 hours.
Agricultural extension, 6 hours.
Thremmatology, 2½ hours.
Botany, 6 hours.
Chemistry, 15 hours.
Entomology, 2½ hours.
Zoology, 5 hours.
English, 4 hours.
Rhetoric, 9 hours.
Economics, 2 hours.
Education, 8 hours.
Library science, 2 hours.
Military, 5 hours.
Physical training, 2 hours.

In addition to the above, students who have not offered three units of the *same* foreign language for matriculation (commonly three years of high-school work) will be required to offer one of the following at their option: (1) Two years of entrance and eight hours of university credit in foreign language (except by special permission these credits should be in the same language); or (2) 16 university credits in the same foreign language; or (3) eight hours of university credit in English literature in addition to the standard requirement, together with eight hours of economics, or eight hours of history, or eight hours of education.

The university also gives in its catalogue suggestive outlines for students preparing to teach agriculture. The arrangement of subjects and the credit hours in each subject are given below:

Courses for teachers of agriculture.

Subject.	Total credits.
FIRST YEAR.	
I. Chemistry	5
Rhetoric	3
Animal husbandry	1½
Botany	1
Dairy husbandry	2½
Dairy husbandry [1]	2½
Military	1
Physical training	1
II. Chemistry	5
Rhetoric	3
Botany	5
Horticulture	3
Military	2
Physical training	1
SECOND YEAR.	
I. Chemistry	5
Horticulture	5
Horticulture	3
Agronomy	2½
Military	1
II. Zoology	5
Animal husbandry	2½
Agricultural extension	1
Agronomy	2½
Animal husbandry	2½
Library science	2
Military	1
THIRD YEAR.	
I. Agronomy	5
English	4
Rhetoric	2
Horticulture	1
Entomology	2½
Animal husbandry	2½
II. Agronomy	5
Agronomy	5
Horticulture	5
Horticulture	1
FOURTH YEAR.	
I. Education	5
Rhetoric	1
Economics	2
Animal husbandry	2½
Animal husbandry	2½
Dairy husbandry	3
II. Thremmatology	2½
Education	(6) 3
Agricultural extension	5
Animal husbandry	2½
Electives	.....

[1] Requires extra time for practical work; time arranged.

In this outline there is an option of subjects for each year, the optional subjects being grouped under I and II. For example, in the first year students selecting Group I will have chemistry, rhetoric, animal husbandry, botany, dairy husbandry, and military and physical training; and those selecting Group II will have chemistry, rhetoric, botany, horticulture, and military and physical training.

Agricultural extension as listed in the second year includes a study of the farmers' institute as a factor in our system of public education.

Education in the fourth year is a course in the principles of education. This course affords opportunity for the observation of elementary and secondary teaching.

Education (6), in the fourth year consists of a discussion of the essential elements of a high school, together with a consideration of the conditions existing in Illinois, and includes work in high-school organization and management.

Agricultural extension, in the fourth year, is devoted mainly to considering what features of agricultural science are best adapted to high-school conditions, the best order and methods for their presentation, how to suit the course and instruction to the special interests and needs of each school community, what laboratory work shall be given, what apparatus may be used, and what field experiments can be planned and executed. There is no course or time mentioned in connection with the electives in the fourth year.

In the summer session of the university special opportunities are offered to teachers in professional and technical courses. For the former there are 10 courses in the department of education, and for the latter four special courses in agriculture, namely, secondary-school agriculture; common-school agriculture; history and judging of market and improved live stock; beef, pork, and mutton production.

PURDUE UNIVERSITY.

Regular students in the school of agriculture of Purdue University are permitted to elect courses in education in the junior and senior years, with a choice of four electives in the junior year and two in the senior year, as follows:

Junior year. General and educational psychology, two courses; history and principles of education; principles and methods of teaching.

Senior year. School organization and school management; secondary and industrial education. These courses apply for credits toward the degree of B. S. A.

The university conducts a summer school for teachers, intended primarily for those teachers in service who wish to prepare for vocational work in the rural schools. The subjects offered are grouped under agriculture, home economics, manual training, and mechanical drawing.

IOWA STATE COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

Iowa State College offers a four-year course in agricultural education leading to the degree of bachelor of science in agricultural education, and also permits its students in regular four-year agricultural courses to elect subjects in education. The first two years of the course in agricultural education are quite similar to those in the regular agricultural courses, but in the junior and senior years of this course not fewer than 12 hours in education must be elected. In the case of students desiring to procure upon graduation a State teacher's certificate without examination, at least 20 hours of such work as will meet the requirements of the State board of educational examiners must be taken.

The following courses in education are offered:

(1) General principles of teaching. A course in those general principles upon which successful instruction, school management, methods, etc., are based. A text with supplemental texts for reference will be used. Three hours.

(2) General principles of teaching. A continuation of course 1. Three hours.

(3) Principles of secondary education. This course treats particularly of those principles that would prevail in high-school, academy, or other secondary-school work wherein the students are of adolescent age. Two hours.

(4) Principles of secondary education. A continuation of course 3. Two hours.

(5) Educational history. A course in the history of education, with special reference to its scientific and industrial phases. Two hours.

(6) Educational history. A continuation of course 5. Two hours.

(7) General methods. A course in the underlying principles of methods of teaching. Two hours.

(8) Special methods. A course in methods especially adapted to the teaching of the sciences and industries. Two hours.

The college conducts a six-weeks summer school devoted to both collegiate and noncollegiate courses. At this time courses in agriculture, horticulture, manual training, home economics, pedagogy, etc., are offered primarily to meet the needs of teachers now in service.

KANSAS STATE AGRICULTURAL COLLEGE.

This college offers to undergraduates and graduates a general science course extending over four years in which the work of the junior and senior years is arranged by elective groups convenient for those wishing to prepare themselves for teaching any particular subject.

For students preparing to teach agriculture the following electives in education are offered: History of education, four hours; methods of teaching, four hours; school management, four hours; school law, two hours; and philosophy of education, four hours.

The college also offers to graduates of other institutions courses extending over one or two years, by means of which those already

prepared in English, mathematics, and other general subjects may secure the necessary technical training in agriculture.

The college conducts a summer school for teachers during six weeks each year, at which special opportunities for training in elementary and secondary agriculture are afforded.

UNIVERSITY OF KENTUCKY.

At this institution it is possible for students in the agricultural course to elect one or more subjects offered by the school of education, these subjects being elementary educational psychology, psychology, philosophy of education, adolescence, history of education, administration, and principles of secondary education.

At the summer session of the university both academic and professional courses are offered to undergraduates in agriculture, arts, engineering, law, and science. Some of these courses are designed especially for teachers.

LOUISIANA STATE UNIVERSITY.

The teachers' college of Louisiana State University offers a four-year teachers' course leading to the degree bachelor of arts. That part of the course relating to agriculture is described below:

(1) Teachers' course in agronomy.

This course will be arranged to give the student of the teachers' college an insight into the elementary principles of agriculture and the ways of presenting the subject. The subject matter will consist of the origin and classification of soils, fertilizers and their use, soil moisture and its conservation, soil erosion and methods of prevention, farm crops and the methods of improving them, and forage crops, with methods of improvement. Laboratory practice will be given in order to bring the student more in touch with his subject. Text: Two hours per week and two hours of laboratory work. Second term.

(2) Horticultural elements for teachers.

A course designed primarily for prospective teachers. It consists of lectures and practices embracing the following subjects:

(1) Nature study, its aims and objects, in which is made a study of the interesting and available material everywhere present.

(2) The school garden, its aims and objects, with practical demonstrations in planning, planting and caring for one.

(3) A brief study in landscape gardening, dealing with its fundamental principles, with special reference to the improvement and adornment of the home and school grounds.

One hour a week and one hour of laboratory work. Both terms.

Other courses in agriculture and horticulture may be elected by students in the teachers' college.

At least 10 hours' work in education and psychology and at least two courses in special methods must be completed by candidates for degrees in this course.

It is also possible for students in the regular agricultural courses to elect courses in education.

A nine weeks' summer school is conducted, largely for the convenience of teachers. At this session six courses in education, nine in agriculture, and three in agricultural education are available for those prepared to do work of college grade.

UNIVERSITY OF MAINE.

The University of Maine, in response to a demand for men capable of teaching all branches of agriculture in high schools or academies, has outlined a four-year course for such teachers, with a total of 11 hours, in education in the sophomore and junior years. The courses in education include the history of education, two semesters; foundations of education, one semester; and child study, one semester. Regular agricultural students may also elect courses in education.

The university also offers a one-year course for teachers in the public schools which is open to college graduates, high-school teachers with at least two years' experience, and normal-school graduates who have had three years' experience in teaching, and consists very largely of technical subjects in agriculture and science.

At the summer session of the university opportunities are given for teachers in high schools and grammar schools to prepare themselves for more advanced positions, and courses are offered in agriculture, home economics, education, horticulture, and the usual academic subjects.

MASSACHUSETTS AGRICULTURAL COLLEGE.

The Massachusetts Agricultural College permits its agricultural students to elect courses in agricultural education. The courses available for this purpose are as follows:

(1) Meaning of education (psychology).

(2) Vocational education (history and philosophy). A survey of educational, religious, and social movements with reference to their vocational aspects; the growth of educational institutions as influenced by science and industry.

(3) Rural-school problems. A study of mental growth; the theory and practice of teaching; school organization and methods of instruction; the place and function of agriculture in the course of study.

(4) Rural-school problems. Designed primarily for those who intend to teach; may be taken in connection with course 3. The work consists of the selection and review of such parts of the courses in agriculture, horticulture, and the biological and physical sciences as are adapted to the work of the public schools; planning and practical work in school gardens; decoration of school grounds; equipment and conduct of playgrounds.

(5 and 6) Seminar in education. For students who have had the preceding courses such topics as rural-school supervision and rural-school surveys are taken up for discussion.

A summer school of agriculture for teachers in elementary and secondary schools, and others, is held annually.

MICHIGAN AGRICULTURAL COLLEGE.

The Michigan Agricultural College makes it possible for its regular agricultural students to take a year's elective work in the science and practice of education and thus become eligible to receive a State teacher's certificate without examination. The elective courses in education are as follows: Senior year, fall term, psychology, five hours; winter term, science of education, five hours (the latter course deals with general school management and practice work); spring term, agricultural pedagogy, five hours. (In this course special attention is given to problems in secondary agriculture, practice teaching, equipment, and organization. The course includes also a study of vocational education.)

A special course for teachers of agriculture is open to persons who are graduates of State normal schools in the life courses, or of recognized colleges, and who have had two or more years' experience in teaching. The work consists of subjects selected from the regular technical, agricultural work of the four-year college course, and credit will be given for the work. If the student desires to remain in the institution longer than one year these credits may be used toward securing a degree later. They are required to elect at least 20 credits each term from the regular technical subjects, and they enter the regular classes, taking the subjects in the same manner and at the same time as the regular students. Students taking this special course will be required to secure at least 60 credits during the year.

UNIVERSITY OF MINNESOTA.

Students in the college of agriculture of the University of Minnesota may prepare for teaching and receive a first-grade professional certificate for two years by completing the following courses in education: Principles of teaching, three hours; industrial education, three hours; history of education, three hours; elements of psychology, three hours; and organization of agricultural and industrial courses, six hours. At the expiration of two years of successful teaching the certificates of these teachers, after being properly indorsed, become first-grade professional certificates for life.

A department of pedagogics is maintained in connection with the college of agriculture, and the following courses are offered: Principles of teaching, three hours a week; industrial education, three

hours a week; and organization and administration of agricultural and other industrial courses, three hours a week.

The university also maintains a summer school for teachers in which ample opportunities are given for the study of agriculture and home economics of elementary and secondary grade.

MISSISSIPPI AGRICULTURAL AND MECHANICAL COLLEGE.

This institution maintains a school of industrial education in which a 4-year course leading to the degree of bachelor of science is offered. The requirements in industrial pedagogy in this course amount to 6 term hours in freshman year, 10 term hours in junior year, 10 term hours in sophomore year, and 5 term hours in senior year. Agronomy is a required course in the third term, sophomore year, and electives in agriculture are available in junior and senior years.

The school of industrial education also offers a short course for teachers during the spring term of the college session, with special opportunities for teachers of industrial and scientific subjects, including the various phases of agriculture and manual training.

UNIVERSITY OF MISSOURI.

The school of education at the University of Missouri provides for a bachelor of science degree course especially adapted to the wishes of those who expect to teach. Courses are provided for both graduate and undergraduate students. In order to secure the degree of bachelor of science in this school the student must fulfill the following conditions:

(1) He must be regularly admitted to the school of education, which means the completion of two years of college work before entering.

(2) He must complete (*a*) a major of 24 hours in education, including three hours of educational psychology, taken prior to entrance, four hours of history of education, three hours of theory of teaching, two hours of school economy, and one hour in school hygiene; and (*b*) a minor of 12 hours chosen, with the consent of the dean, in subjects related to education.

(3) He must complete a total of at least 72 hours. Those specializing for a life certificate to teach agriculture must include in the above total a minimum of 15 hours of university credit in agronomy, animal husbandry, and horticulture.

Similar special groups are offered in biology, botany, chemistry, home economics, physics, physiology, zoology, and several other subjects.

Students in the 4-year agricultural course are given ample foundation courses in agriculture in the required work of the first three years and have opportunities to elect seven semester hours in junior and 24 semester hours in senior year. If they desire to teach, a part of their elective courses may be taken in the school of education.

A summer session of nine weeks is conducted and courses in agriculture, home economics, education, and many other subjects are

offered with a view to meet the needs of teachers in elementary and secondary schools.

UNIVERSITY OF NEBRASKA.

The teachers' college of the University of Nebarska is a professional school requiring two years of college work for admission. Students in the college of agriculture intending to teach, who wish to secure the university teachers' certificate along with the bachelor's degree, register in the teachers' college in the junior year and specialize in education.

Among the courses offered in the teachers' college is one in agricultural pedagogy dealing with the educational value of industrial, and especially agricultural, training; industrial training as applied to Nebraska and Nebraska problems; the part which the schools, rural and town, should take in education for rural life; courses of study and material for agricultural instruction in both rural and high schools; study of the preparation of the teachers of this work.

Teachers' college also offers a special one-year course in agriculture intended for high-school or normal-school teachers and others preparing to become such, but who for any reason find it impossible to take the course for the degree of bachelor of science in agriculture. The subjects included in this course are as follows: Agronomy, seven weeks; horticulture, seven weeks; dairying, seven weeks; anatomy and physiology, seven weeks; animal husbandry, seven weeks; with botany, chemistry, or physics, zoology, forestry, geology, entomology, economics, and manual training running on an average of three hours per week throughout the year.

At the summer session of the university, held for eight weeks each year, several courses in agricultural subjects designed to meet the needs of high-school teachers are offered.

UNIVERSITY OF NEVADA.

Students in the school of agriculture have opportunities to pursue elective courses in each year of their stay at the university. This permits those who wish to prepare to teach agriculture to elect courses in the college of education.

The college of education offers an elementary or junior college course of two years to prepare teachers for elementary schools and an advanced or senior college course of two years to prepare teachers for high schools. The two courses constitute a 4-year college course. Students in the senior-college course in education have opportunities to elect three hours a week throughout the first year and six hours a week throughout the second year, and a part of this work can be taken in the school of agriculture. Graduates from the college of education receive the degree bachelor of science in education.

Beginning with 1912 the university inaugurated a summer school, six weeks in length, the purpose of which is to supply teachers with courses needful in their work.

Training-school practice is secured in connection with the city schools of Reno.

NEW MEXICO COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

Students in the course in general science have opportunities to elect work both in agriculture and in education. The courses in education include elementary psychology, general psychology, and pedagogy. The latter course deals with the theory and practice of teaching and school management.

It will attempt to deal with the actual conditions as they exist in the public schools of New Mexico and will aim to prepare teachers to meet those conditions. Attention will be given to the movement for the teaching of agriculture in the public schools.

CORNELL UNIVERSITY.

Students in the New York State College of Agriculture at Cornell University have at their command all of the facilities of the school of education of Cornell University, which offers numerous courses in the science and art of education. Students registered in the college of arts and sciences have the opportunity of taking work amounting in all to one year's study in any of the other colleges of the university. This permits students in the school of education to prepare for teaching "one or more of the so-called special subjects to which so much attention is now paid, such as drawing, manual training, industrial and agricultural education, music, and nature study."

The latest announcement of the New York State College of Agriculture contains this statement: "It is expected that courses in rural education for the benefit of those who expect to teach will be offered in 1912–13."

A summer school is conducted at which teachers are given special opportunities to prepare themselves in nature study and agriculture.

NORTH CAROLINA AGRICULTURAL AND MECHANICAL COLLEGE.

This institution offers a four-year course for teachers, the first two years of which are identical with the general agricultural course. The last two years have a different grouping of technical courses but do not include any special instruction in education.

The institution also offers a two-year and a one-year course for rural teachers with some attention given to methods of teaching agriculture.

A two-weeks' spring course or "May school" is conducted to enable teachers to acquire some proficiency in one or more industrial lines.

NORTH DAKOTA AGRICULTURAL COLLEGE.

This institution offers a four-year course in education, which includes a minimum of required work in general subjects and in education and permits students to elect a large proportion of their work from the various other departments in the college. Students who have completed the course in education, and other graduates of the agricultural college who have secured 24 credits in the department of education, are granted credentials by the State board of examiners leading to life certificates to teach in the public schools of North Dakota.

The courses offered in education include history of education, psychology, childhood and adolescence, principles of teaching, agricultural and industrial education, education in the United States and school administration, educational investigations, observation and practice, school law, and special lectures. Students who expect to teach industrial subjects are afforded opportunities to observe class work in the agricultural high school of the college and they also engage in instruction under supervision.

The agricultural and manual-training high school connected with this institution offers a three-year course for rural teachers, the work of the first year leading to credits for a second-grade certificate, that of the third year to a first-grade certificate

OHIO STATE UNIVERSITY.

Under the elective system in vogue at this institution, students in the college of agriculture may prepare for teaching by electing work in the college of education, and students in the college of education may prepare for teaching agriculture by electing courses in the college of agriculture. In addition to the usual courses in education, the college of education offers the following in agricultural education:

(1) Elements of general agriculture, six credit hours throughout the year. This course will include besides animal studies, plant studies, farm mechanics, and soil studies—work in the greenhouse and the demonstration garden.

(2) The teaching of agriculture in the high school. two credit hours, either first or second semester. This course is especially intended for superintendents, principals, and teachers of secondary agriculture in the high schools of the State.

(3) Teaching elementary agriculture, two credit hours, either first or second semester. This course is designed to meet the pedagogical requirements of township superintendents, rural teachers, and teachers in village elementary schools.

(4) Rural life and institutions, two credit hours, second semester. This course will constitute an inquiry into the status of social life in rural communities, and the various institutions through which this life finds expression.

The summer session of the university offers special opportunities for special teachers of agriculture and also enables them to pursue

courses upon which they can secure credits toward a university degree.

OKLAHOMA AGRICULTURAL AND MECHANICAL COLLEGE.

The normal division of the Oklahoma Agricultural and Mechanical College has outlined a four-year course for teachers of agricultural and industrial subjects. The work of the freshman year in this course is required, that of the sophomore year is half elective, that of the junior year about two-thirds elective, and that of the senior year entirely elective with the exception of courses in pedagogy, music, and history. The electives are drawn from all of the other departments of the college.

The courses in education include pedagogy, history of education, methods and management, theory and practice of teaching, philosophy of education, educational psychology, high-school teaching, high-school administration, and school supervision.

There are also opportunities for students pursuing the regular agricultural course to elect work in the department of education.

A six-weeks' summer school is held, and special attention is given to the training of teachers.

OREGON AGRICULTURAL COLLEGE.

Students who wish to prepare for teaching agriculture register in the school of agriculture and receive their degree from there, but they substitute courses in pedagogy for certain courses in the outline of the degree courses in agriculture, making these substitutions upon the advice of the dean of the school of agriculture and the professor of industrial pedagogy. The following courses are offered in the department of industrial pedagogy: General psychology, educational psychology, history of education, school management, general method, special method in agriculture, special method in home economics, special method in manual training, special method in commerce, school administration, school hygiene, child study, and research.

A summer school is held for the convenience of those unable to attend college during the academic year, and courses are offered for teachers of elementary and secondary school subjects. At the college these teachers may pursue regular college courses for college credits or special courses organized for them. Work in agriculture is included among both regular and special courses.

PENNSYLVANIA STATE COLLEGE.

Pennsylvania State College offers a four-year collegiate course in agricultural education intended especially for teachers in the secondary schools. This course gives instruction in the fundamental

principles of plant and animal production, including generally the first subjects taught in the different departments of the school of agriculture.

It also includes 13 college credits in pedagogical subjects, four of which are in the pedagogy of agriculture.

Graduates from the State normal schools who do not wish to complete the four-year college course can enter the two-year special agricultural course, and among other subjects elect four hours a week of the pedagogy of agriculture for the first semester.

The practice-teaching problem is met with a limited number of students by utilizing the local high school.

The college holds a six-weeks' summer session each year, and at this time offers special courses in elementary and secondary school agriculture. Teachers now in service are also aided by means of correspondence courses.

RHODE ISLAND STATE COLLEGE.

A teachers' course in applied science is offered at the Rhode Island State College. This course is practically identical with the agricultural course throughout the first two years, but at the beginning of the junior year it offers to the student three options, one of which he must elect in conjunction with certain studies required of all. The three options consist of groups in (1) agriculture, (2) biology, and (3) chemistry. Among the required subjects are one course in psychology in the junior year and three courses in education in the senior year. The junior course is general psychology, three hours a week for one semester. The other courses in education are, history of education, three semester hours; principles of education, two semester hours; and secondary education, two semester hours.

SOUTH DAKOTA STATE COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

At this institution psychology for three semester hours is required of all junior students in agriculture, home economics, and general science, while senior students in these courses may elect a three-hour course in the history of education, and a three-hour course in the principles of education. This gives the students who desire to prepare for teaching an opportunity to pursue professional courses.

UNIVERSITY OF TENNESSEE.

The school of education of the University of Tennessee offers a four-year course for teachers of agriculture leading to the degree of bachelor of science in education. The freshman year of this course is identical with the agricultural course in the college of agriculture. The sophomore year differs from that in the college of agriculture

only in the substitution of psychology for botany. The junior and senior years are largely elective, subject, however, to approval by the faculty and to the requirement that four courses in education must be taken. The agricultural group includes courses in agronomy, horticulture, animal husbandry, and dairying; the education group includes the history of education, psychology, philosophy, and a special course on the teaching of agriculture.

The college of agriculture conducts a summer course for teachers, which is held at the same time as the Summer School of the South, and gives its students some of the advantages of the latter school.

AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS.

A six-weeks' summer normal school is held at this institution and is open to men and women on equal terms. The purpose of this school is to enable teachers to improve themselves in the regular subjects of the public schools and to qualify to teach agriculture.

AGRICULTURAL COLLEGE OF UTAH.

This institution does not offer any courses in education, but it has an arrangement with the State University whereby graduates of the normal school of the university may enter the degree courses of the agricultural college and there obtain technical work in home economics, agriculture, and mechanic arts, and receive full credit for work done in the normal school toward the professional degree. Likewise, graduates from the degree course in the agricultural college will be given the normal certificate upon the completion of one year of professional work at the State normal school.

At the summer session of the college, which is held during six weeks of June and July, special courses in pedagogy, psychology, and nature study, in addition to the regular work of the college, are provided for the benefit of teachers.

UNIVERSITY OF VERMONT AND STATE AGRICULTURAL COLLEGE.

The college of agriculture offers a course for the training of teachers of agriculture in the secondary schools, the first two years of which are identical with other courses in the college of agriculture. In the junior year students in the teachers' course are required to take one course in the principles of education, one in psychology, three courses in the agricultural group, and a technical elective. In the senior year they have a course in genetic psychology, a course in school administration, three courses in agriculture, a nontechnical elective, and a thesis.

A summer school of six weeks is conducted under the direction of the department of education, and for the benefit of teachers in sec-

ondary and graded schools special courses are given in primary and intermediate methods, juvenile literature, drawing, and music. These courses will not count toward university degrees, but records will be kept and certificates of credit issued for all work satisfactorily done. The university equipment in agriculture, manual training, and home economics makes it possible to offer strong courses in these subjects.

STATE COLLEGE OF WASHINGTON.

One of the objects mentioned in the organic act creating the State College of Washington is "to train teachers of physical science and thereby further the application of the principle of physical science to industrial pursuits." The college therefore grants State college normal diplomas to graduates who have completed not less than 15 semester hours in the department of education, and State college life diplomas to those who in addition to this present evidence of 24 months of successful teaching experience.

The course outlined by the department of education extends over four years and is largely elective. The required subjects consist of English, mathematics, history, economics, school hygiene, history of education, general psychology, the high school, State Manual of Washington, and principles of education.

In addition to this, students preparing to teach may elect courses intended to present special methods of instruction for particular subjects. The courses thus far established in special methods are agricultural education, two hours; botany, two hours; chemistry, one hour; home economics, three hours; English, two hours; history, two hours; Latin, three hours; mathematics, two hours; modern languages, two hours; physics, one hour; physical education, three hours.

The remaining electives may be chosen from the college of agriculture, with the exception of those in the freshman year, where elections in a language and a science are required. Under these arrangements it is possible for students to prepare for teaching any of the natural sciences.

A summer session is held annually at which attention is given particularly to the needs of teachers of elementary and high-school subjects.

WEST VIRGINIA UNIVERSITY.

The college of agriculture announces that those who desire to prepare for teaching agriculture may secure a State teachers' certificate in addition to the degree bachelor of science in agriculture, by substituting eight courses in education for 20 hours of the elective courses in the junior and senior years of the agricultural course. This course will give the student ample training in the fundamentals of agri-

culture and also the necessary work in education. The courses required in education are history of education, ancient, medieval, and modern, modern educational theory, philosophy and education, philosophy of education, school administration and supervision, and agricultural education.

A nine-weeks' summer school is held each year and opportunities are given for teachers to pursue courses in education, the usual subjects of the elementary school and high school, and elementary agriculture, secondary agriculture, and nature study.

UNIVERSITY OF WISCONSIN.

At the University of Wisconsin opportunities are given for undergraduate students in the four-year agricultural course to prepare for teaching by completing as a part of their elective work the following courses in education: Psychology, three credits; education, three credits; agricultural education, two credits.

Students in the college of letters and science who desire to prepare for teaching agriculture as a minor subject are permitted to offer agriculture as a minor subject in connection with a major in physical or biological science. A minimum of 18 credits in agriculture will be required, including 10 credits in animal husbandry, agronomy, dairy husbandry, and horticulture, and eight credits from approved and related courses from the following: Agricultural chemistry, agricultural economics, agricultural engineering, agronomy, animal husbandry, bacteriology, dairy husbandry, horticulture, and soils.

Upon the completion of either of these courses the graduate receives in addition to the usual bachelor's degree the university certificate entitling the holder to receive from the State superintendent of public instruction a license to teach for one year in any public school in Wisconsin. After one year of successful teaching, the holder of this certificate may receive from the State superintendent an unlimited State certificate.

The university also offers an advanced course for the training of teachers, designed to meet the needs of students who desire more intensive preparation for teaching than that provided by the undergraduate course. This course may be completed in one semester of resident-graduate work or by pursuing graduate work during two summer sessions.

Facilities for practice teaching and observation are provided in the university demonstration school and the public schools of Madison. The university also offers to place in some of the high schools of the State teaching fellows. These will be graduate students who receive a compensation from the university and an additional compensation for the actual teaching that they do in the high schools. They

will give one-half time to instructional work under the supervision of an expert teacher or supervisor in the cooperating school and under the general supervision of the instructor in agricultural education at the college of agriculture. The other half of their time will be given to graduate study in the university.

A six-weeks' summer session is held each year and courses both academic and professional are offered for graduates and undergraduates in agriculture, for teachers in colleges, agricultural schools, high schools, and technical schools.

UNIVERSITY OF WYOMING.

Students in the college of agriculture have opportunities to choose electives in the other colleges of the university during the junior and senior years. This enables them to choose courses in education as offered in connection with the normal school of the university. The following courses in education are designated for those preparing to teach in high schools: General psychology, educational psychology, principles of education, history of education, systems and problems of secondary education, and training for high-school teaching.

Students in the college of liberal arts pursuing courses in education may also choose electives in the college of agriculture.

A summer school of six weeks is held each year at which special attention is given to review courses for teachers, but opportunities are also afforded for students to pursue the university courses. On this subject the catalogue of the university says: "Courses in the colleges of agriculture and engineering and in the school of home economics may be arranged for by special application."

RECOMMENDATIONS OF THE COMMITTEE.

(1) It is the proper function of the agricultural colleges to train teachers of agriculture for public and private high schools, for technical agricultural schools, and for the agricultural and other colleges.

(2) The performance of this function by the agricultural colleges will not duplicate the work of the State normal schools, which for the most part are engaged in the training of teachers for the elementary schools.

(3) Inasmuch as the great majority of secondary schools giving courses in agriculture will have only one or two teachers of agriculture, students in the course in agricultural education should ordinarily be well grounded in the general principles of the various branches of agriculture, and the colleges should offer general courses in agriculture to meet the requirements of such students.

(4) Teachers of agriculture in secondary schools should have not less than 20 semester hours of professional training, including instruc-

tion in educational psychology, history of education, pedagogy, and special methods applicable to agriculture in the secondary schools, supplemented by practice in teaching.

If the college of agriculture is connected with a university having a department of education, the pedagogical studies of the candidate in the course in agricultural education may be pursued in that department, which should have at least one professor devoting his time to agricultural education. In separate agricultural colleges a department of agricultural education should be maintained.

(5) Definite provision should be made for practice teaching on the part of those preparing to teach agriculture. In the case of colleges closely associated with normal schools or with university colleges of education, practice teaching can be done in the practice schools connected with them, but in the separate agricultural colleges the problem is somewhat more difficult. Such colleges should make provision for student-teachers to observe and criticize teachers at work in schools in the vicinity of the colleges and in the college classes, and if feasible arrange for them to teach under the most careful supervision in neighboring high schools, in the preparatory schools or schools of agriculture connected with the colleges of agriculture, or in certain of the short courses conducted by the colleges of agriculture. This matter will need to be handled with rare good judgment, however, not only as to the classes in which students shall be permitted to teach, but also as to the fitness of each particular student to teach in a given class.

A plan that is being tried at the University of Wisconsin offers one valuable suggestion and gives recognition to the idea now rapidly advancing that teaching is a profession and that professional training in addition to the requirements for the bachelor's degree is desirable. This plan is to place teaching fellows in some of the high schools. These fellows will be graduate students in education and will receive a compensation from the university and an additional compensation for the actual teaching that they do in the high schools. They will give one half of their time to instructional work under the supervision of an expert teacher or supervisor in the cooperating school and under the general supervision of the instructor in agricultural education at the college of agriculture. The other half of their time will be given to graduate study in the university. In a four-year college course there would not be much opportunity for practice teaching under such an arrangement as this, but when students begin to take post-graduate work in preparation for teaching such an arrangement can easily be made.

(6) Inasmuch as the supply of properly trained teachers of agriculture will continue below the demand for some time, the agri-

cultural colleges should make special provision for training teachers already in high-school service who desire to fit themselves to become teachers of agriculture in secondary schools. In this work special emphasis should be laid on the acquirement of the subject matter of agriculture, including both the science and practice. Agricultural instruction of collegiate grade should be offered in summer sessions or through correspondence courses, and proper provision should be made for credit for this work on passing suitable examinations.

A. C. True,
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Committee.

Recommended for publication.
A. C. True, *Director.*

Publication authorized.
James Wilson, *Secretary of Agriculture.*

Washington, D. C., *November 27, 1912.*

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